

IN THE CLAIMS:

Please cancel claims ~~21-30~~, ~~36~~, ~~38~~, and ~~43~~.

Please amend claim 41.

27 41. (Amended) A hub as recited in claim 3~~0~~²⁵, wherein the shaft extends through the [pulley, gear, or wheel] device when the [pulley, gear, or wheel] device is mounted on said hub, said hub is disposed on the shaft, and the shaft extends to said integral stop.

Allowed claims 1-20, 31-34, and 39-42 (including claim 41 as amended above) are presented below for the convenience of the Examiner.

1. A hub for mounting a pulley, gear, or wheel on a shaft having a keyway, said hub comprising:

a first opening extending axially into said hub, said first opening comprising an inner surface for disposing said hub on the shaft, said first opening having a first end and a second end;

an integral key extending radially inward from said inner surface, said integral key extending at least part of the way along said inner surface between said first end and said second end for engaging the keyway for preventing relative rotation between said hub and the shaft when said hub is disposed on the shaft;

an integral stop extending across at least a portion of said first end for preventing the shaft from extending beyond said hub when said hub is disposed on the shaft; and

a mounting surface having a position for mounting the pulley, gear, or wheel on the hub, wherein the shaft extends through the pulley, gear, or wheel when the pulley, gear, or wheel is mounted on said hub, said hub is disposed on the shaft, and the shaft extends to said integral stop.

2. A hub as recited in claim 1, wherein said integral key extends from said first end to said second end of said first opening.

3. A hub as recited in claim 1, further comprising a second opening extending through said integral stop, said second opening communicating with said first opening.

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4. An assembly comprising a hub as recited in claim 3, in combination with said shaft and a bolt, wherein said shaft has a tapped hole in said shaft end, whereby said second opening provides access to said tapped hole in said shaft end by said bolt for fastening said hub to said shaft.
5. A hub as recited in claim 3, wherein said second opening is at least partially aligned with said integral key.
6. A hub as recited in claim 3, wherein said integral key extends at least into said second opening.
7. A hub as recited in claim 6, wherein said second opening has a round shape and said second opening is disposed concentrically with said first opening.
8. A hub as recited in claim 6, wherein at least a portion of said second opening has a pie shape and the pie-shaped portion of said second opening is disposed concentrically with said integral key.
9. A hub as recited in claim 6, wherein said integral stop extends across only a portion of one of said first and second ends of said first opening, said integral stop being bounded by a chord extending across said one of said first and second ends of said first opening, said second opening having a segment shape bounded by said chord.
10. A hub as recited in claim 9, wherein said second opening is disposed concentrically with said integral key.
11. A hub as recited in claim 3, wherein said integral key extends through said second opening.

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12. A hub as recited in claim 3, wherein said second opening is circular and said second opening has a diameter smaller than said first opening.

13. A hub as recited in claim 12, wherein said second opening is concentric with said first opening.

14. A hub as recited in claim 1, said hub being formed by a powder metallurgy process.

15. A hub as recited in claim 14, said hub being formed by the steps of:

- a) providing a mold,
- b) filling said mold with metal powder of suitable composition, particle size, and particle shape,
- c) compacting said metal powder in said mold at suitable time and pressure to form a preform,
- d) removing said preform from said mold,
- e) providing a non-oxidizing atmosphere, and
- f) applying heat to said preform at suitable time and temperature in said non-oxidizing atmosphere to sinter said metal powder.

16. A hub as recited in claim 15, wherein said metal powder is nickel steel powder having a composition by weight of 91.9% to 98.7% Fe, 1.0% to 3.0% Ni, 0.3% to 0.6% C, zero to 2.5% Cu, and any other elements taken together totaling no more than 2.0% maximum.

17. A hub as recited in claim 1, having an outer surface, said hub further comprising a hole communicating between said inner surface of said opening and said outer surface, said hole being tapped with internal threads for a conventional setscrew, said hole being suitably disposed for attaching said hub to said shaft wherein said hub is prevented from moving axially relative to said shaft.

18. A pulley comprising:

- a) a hub as recited in claim 1, and
- b) a disk-shaped body having a rim formed with a peripheral recess for receiving a pulley belt, said disk-shaped body being affixed to said hub.

19. A pulley as recited in claim 18, wherein said disk-shaped body is affixed to said hub by a weld.

20. A pulley as recited in claim 18, wherein said disk-shaped body is affixed to said hub by pressing.

31. A gear comprising:

- a) a hub as recited in claim 1, and
- b) a disk-shaped body having a rim formed with gear teeth, said disk-shaped body being affixed to said hub.

32. A gear as recited in claim 31, wherein said disk-shaped body is affixed to said hub by a weld.

33. A gear as recited in claim 31, wherein said disk-shaped body is affixed to said hub by pressing.

34. A hub for mounting a device on a shaft, the hub comprising a first face and a second face, an opening extending there between, said opening having a length between said first face and said second face, said opening comprising an inner surface, an integral key extending radially inward from said inner surface, said integral key extending at least part of the way between said first face and said second face, said opening and said integral key for receiving a shaft having a keyway, said hub further comprising an integral stop extending across at least a portion of said opening for preventing the shaft from extending beyond said hub when said hub is disposed on the shaft, the hub further comprising a mounting surface having a position for mounting the device on the hub, wherein the shaft extends through the device when the device is mounted on said hub, said hub is disposed on the shaft, and the shaft extends to said integral stop.



39. A hub for mounting a device on a shaft, the shaft having a shaft end, said hub comprising:

a first opening extending axially into said hub, said first opening having an inner surface for disposing said hub on the shaft, said first opening having a first end and a second end;

an integral stop extending across only a portion of said first end, said integral stop for preventing the shaft from extending beyond said hub when said hub is disposed on the shaft; and

wherein the shaft extends through the device when the device is mounted on said hub, said hub is disposed on the shaft, and the shaft extends to said integral stop.

40. A hub as recited in claim 39, wherein said hub further comprises a mounting surface having a position for mounting the device on the hub.

41. (Amended) A hub as recited in claim 39, wherein the shaft extends through the device when the device is mounted on said hub, said hub is disposed on the shaft, and the shaft extends to said integral stop.

42. A hub as recited in claim 39, further comprising means integral with said inner surface of said first opening for preventing relative rotation of said hub on the shaft when said hub is disposed on the shaft.